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(54) **MULTIPLE USER SIMULTANEOUS LOCALIZATION AND MAPPING (SLAM)**

(71) Applicant: **Apple Inc.**, Cupertino, CA (US)

(72) Inventors: **Abdelhamid Dine**, Santa Clara, CA (US); **Kuen-Han Lin**, Mountain View, CA (US); **Oleg Naroditsky**, San Francisco, CA (US)

(73) Assignee: **Apple Inc.**, Cupertino, CA (US)

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Primary Examiner — Jin Ge

(74) *Attorney, Agent, or Firm* — Thompson Hine LLP

(57) **ABSTRACT**

In some implementations, a first electronic device including a first image sensor uses a processor to perform a method. The method involves obtaining a first set of keyframes based on images of a physical environment captured by the first image sensor. The method generates a mapping defining relative locations of keyframes of the first set of keyframes. The method receives a keyframe corresponding to an image of the physical environment captured at a second, different electronic device and localizes the received keyframe to the mapping. The method then receives an anchor from the second electronic device that defines a position of a virtual object relative to the keyframe. The method displays a CGR environment including the virtual object at a location based on the anchor and the mapping.

11 Claims, 29 Drawing Sheets